

Listing of the Claims:

Claim 1 (Currently Amended): A phase shifter, comprising:

- an input port for receiving a radio frequency (RF) signal;
- a power dividing means for dividing the RF signal into a first divided signal of which phase is to be varied and a second divided signal having a fixed phase value;
- a first output port for outputting the second divided signal having the fixed phase value;
- a phase shift means for dividing the first divided signal into a third divided signal and a fourth divided signal wherein the third divided signal and the fourth divided signal move in opposite directions and for shifting phase of the third divided signal and the fourth divided signal based on a difference in a path length of the third divided signal and the fourth divided signal, to thereby generate phase-shifted signals;
- ~~a phase delay means for shifting phase of the third divided signal and the fourth divided signal based on a difference in a path length of the third divided signal and the fourth divided signal, to thereby generate phase-shifted signals for delaying of the third divided signal and the fourth divided signal based on the phase-shifted signals;~~ and
- at least two second output ports connected to ~~said~~ the phase delay means, for outputting the phase-shifted signals.

Claim 2 (Currently Amended): The phase shifter as recited in claim 1, wherein ~~said~~ the power dividing means includes:

- a first induction unit electrically connected to the first output port, wherein the first induction unit is a ~~copper~~ plate having a semicircle shape formed on the same plane as ~~said~~ the input port and the first induction unit transmits the first divided signal to the first output port;

a second induction unit wherein the second induction unit is a ~~copper~~ plate having a ring shape formed on the same plane as ~~said~~ the phase shift means and the second induction unit transmits the first divided signal to the phase shift means; and
a dielectric located between the first induction unit and the second induction unit.

Claim 3 (Original): The phase shifter as recited in claim 2, wherein the power dividing means controls power energy of the first divided signal and the second divided signal by varying the length of the semicircular arc of the first induction unit and the size of the second induction unit.

Claim 4 (Currently Amended): The phase shifter as recited in claim ~~1~~ 2, wherein ~~said~~ the phase delay means is a copper plate having a circle arc shape and is formed on the same plane with a plane of the ~~as-said~~ input port; and

wherein ~~said~~ the phase shift means varies a path length of the RF signal fed into ~~said~~ the phase delay mean means by rotating clockwise or counterclockwise about a pivot point located on the center of the circle arc.

Claim 5 (Currently Amended): The phase shifter as recited in claim 4, wherein the dielectric is located between ~~said~~ the phase delay means and ~~said~~ the phase shift means, to thereby transfer power by electromagnetic bond.

Claim 6 (Currently Amended): The phase shifter as recited in claim 5, wherein ~~said~~ the phase delay means includes a plurality of copper plate patterns each having a different radius formed on the same plane of the phase delay means and an arc-shaped comb shape, and generates phase-

shifted signals based on angular degrees by which said the phase shift means rotates.

Claim 7 (Original): The phase shifter as recited in claim 1, wherein the number of the second output ports is four.

Claim 8 (Original): The phase shifter as recited in claim 1, wherein the number of the second output ports is eight.

Claim 9 (Original): The phase shifter as recited in claim 4, wherein the phase shift means controls power energy outputted from the third divided signal and the fourth divided signal in proportion to the length and width of the phase shift means.

Claim 10 (New): A phase shifter, comprising:

- an input port for receiving a radio frequency (RF) signal;

- a power dividing means for dividing the RF signal into a first divided signal and a second divided signal having a fixed phase value and ;

- an output port for outputting the second divided signal having the fixed phase value;

- wherein the first divided signal is divided into at least two signals, and phase of the at least two signals are shifted based on a path length of the at least two signals.

Claim 11 (New): The phase shifter as recited in claim 10, wherein said power dividing means includes:

a first induction unit electrically connected to the first output port, the first induction unit having a semicircle shape;

a dielectric located on the first induction unit; and

a second induction unit having a ring shape located on the dielectric.

Claim 12 (New): The phase shifter as recited in claim 11, wherein the power dividing means controls power energy of the first divided signal and the second divided signal by varying the length of the semicircular arc of the first induction unit and the size of the second induction unit.

Claim 13 (New): A phase shifter, comprising:

a phase shift unit rotatable at a pivot point and feeding a first radio frequency (RF) signal;

and

a phase delay unit in shape of arc-shaped comb for dividing the first RF signal into two signals and shifting phases of the divided signals based on a path length.

Claim 14 (New): The phase shifter of claim 13, further comprising

an input port for receiving an input radio frequency (RF) signal;

a power dividing means for dividing the input RF signal into the first RF signal and a second RF signal having a fixed phase value and;

a first output for outputting the second RF signal having the fixed phase value; and

at least two second output ports connected to said phase delay unit, for outputting the divided signals of which phases are shifted.

Claim 15 (New): The phase shifter of claim 14, wherein said power dividing means includes:

- a first induction unit electrically connected to the first output port, wherein the first induction unit has a semicircle shape;

- a dielectric located on the first induction unit; and

- a second induction unit having a ring shape and located on the dielectric.

Claim 16 (New): The phase shifter as recited in claim 15, wherein the power dividing means controls power energy of the first RF signal and the second RF signal by varying the length of the semicircular arc of the first induction unit and the size of the second induction unit.

Claim 17 (New): The phase shifter as recited in claim 13, wherein a dielectric is located between said phase delay unit and said phase shift unit, to thereby transfer power by electromagnetic bond.

Claim 18 (New): A phase shifter, comprising:

- a phase shift unit rotatable at a pivot point and feeding a radio frequency (RF) signal; and

- a phase delay unit for dividing the RF signal into two signals and shifting phases of the divided signals based on a path length.

- wherein, the phase delay unit includes a arc-shaped conduction line and a plurality of open stubs extending from the arc-shaped conduction line.

Claim 19 (New): The phase shifter of Claim 18, wherein the open stubs slow wave propagation to thereby increase phase-shifting range.

Claim 20 (New): The phase shifter of claim 18, further comprising

- an input port for receiving an input radio frequency (RF) signal;
- a power dividing means for dividing the input RF signal into the first RF signal and a second RF signal having a fixed phase value and;
- a first output for outputting the second RF signal having the fixed phase value; and
- at least two second output ports connected to said phase delay unit, for outputting the divided signals of which phases are shifted.

Claim 21 (New): The phase shifter of claim 20, wherein said power dividing means includes:

- a first induction unit electrically connected to the first output port, wherein the first induction unit has a semicircle shape;
- a dielectric located on the first induction unit; and
- a second induction unit having a ring shape and located on the dielectric.

Claim 22 (New): The phase shifter as recited in claim 21, wherein the power dividing means controls power energy of the first RF signal and the second RF signal by varying the length of the semicircular arc of the first induction unit and the size of the second induction unit.

Claim 23 (New): The phase shifter as recited in claim 18, wherein a dielectric is located between the phase delay unit and the phase shift unit, to thereby transfer power by electromagnetic bond.

Claim 24 (New): A phase shifter, comprising:

- an input port for receiving a radio frequency (RF) signal;

a power dividing means for dividing the RF signal into a first divided signal and a second divided signal having a fixed phase value and ;

an output port for outputting the second divided signal having the fixed phase value;

wherein, the second divided signal divided in the power dividing means is electromagnetically transferred to the output port.